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10/673,537	09/29/2003	Nicholas F. DiCamillo	13024US01	1847

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RESTON, VA 20191

EXAMINER
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GREY, CHRISTOPHER P

ART UNIT	PAPER NUMBER
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2616

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10/09/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/673,537

**Applicant(s)**

DICAMILLO ET AL.

**Examiner**

Christopher P. Grey

**Art Unit**

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☒ Claim(s) 36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Objections*

1. Claims 1 and 20 are objected to because of the following informalities:

It is unclear to the examiner what is meant by "greater than or less than". In light of the claim not being fully comprehended by the examiner, the examiner insists that the limitation is interpreted to mean that any value of a signal that is not the second BW is decreased.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 and 5-33 are rejected under 35 U.S.C. 102 (b) as being anticipated by Tang (US-5016242).

**Claim 1, 12, 20, 27** Tang discloses defining a filter function arranged to decrease signals outside a second bandwidth, the second bandwidth being less than the first bandwidth (**fig 2, depicts a LPF, 30, where a LPF and narrow band filters decreases signals outside of a 2<sup>nd</sup> BW, the result of filtering**).

Tang discloses replicating (**Col 3 lines 11-13, replicate spectrums and fid 2, 62, 70 and 90 replicates or splits/divides a signal**) the input signals comprising a

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third bandwidth that is a multiple of the second bandwidth to generate a number of replicated signals corresponding to the multiple (**fig 2 depicts splitting or dividing or replicating a signal A, the result of filtering, comprising a 3<sup>rd</sup> bandwidth where that third BW is the same as the first BW, and every number is a multiple of itself**).

Tang discloses filtering the replicated signals according to the filter function to generate filtered signals (**fig 2 depicts narrowband filters used to filter the power divided or splitted signals, see fig 2 of 2, 63, 71 and 91**).

Tang discloses generating the output signal in response to the filtered signals (**fig 3 depicts the multiplexer multiplexing the filtered signals discussed above, and forming an output signal**).

**Claim 2, 13, 21, 28** Tang discloses wherein the filter function defines a plurality of center frequencies including a predetermined center frequency applicable at the time the filter function filters one of the replicated signals and wherein the one replicated signal includes the predetermined center frequency (**Col 4 lines 49-51**).

**Claim 3, 14, 22, 29** Tang discloses wherein the plurality of center frequencies are separated by substantially equal frequencies (**Col 4 lines 49-51, 1.9 GHZ, 2.1 GHZ, 2.3 GHZ...**).

**Claim 5** Tang discloses providing a plurality of hardware filters (**fig 1, 16, f0-fn**).

**Claim 6, 15** Tang discloses wherein said input signals further comprise signals comprising the second bandwidth and wherein said filtering comprises filtering the signals comprising the second bandwidth according to the filter function to generate

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filtered signals (**fig 2, sheet 1 of 2 depicts signals 23, 24 and 25 entering the filters without entering the 2 way power divider**).

**Claim 7, 16, 23, 30** Tang discloses wherein replicating comprises power dividing (**see power dividers in fig 2, sheet 1 of 2**).

**Claim 8, 17, 24, 31** Tang discloses noise filtering (**19-21, filtering channel interference**).

**Claim 9, 18, 25, 32** Tang discloses bandpass filtering wherein the pass band comprises the second bandwidth (**fig 2, 11 and related description**).

**Claim 10** Tang discloses said generating comprising combining the filtered signals into the output signal (**fig 3 depicts the multiplexer combining a number of signals to form an output signal**).

**Claim 11, 19, 26, 33** Tang discloses wherein the first bandwidth comprises the sum of the bandwidths of the input signals (**fig 2 uses power combiners/summers in order to formulate the output signal**).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being obvious over Tang (US 5016242).

**Claim 4** Tang discloses a modulation process occurring between narrowband filtering and channel filtering as disclosed in fig 3.

Tang does not specifically disclose storing instructions for a software algorithm.

It would have been obvious to one of the ordinary skill in the art at the time of the invention that the modulation involves implementing some form of software, where it is understood in the art that software must be stored in order to be implemented.

Furthermore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine software instructions to the implementation of the filters, where software instructions can allow the setting of cutoff and center frequencies easier.

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4. Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being obvious over Tang (US 5016242) in view of Hwang et al. (US 5576721).

**Claim 34** Tang does not specifically disclose wherein each of the plurality of input signals comprises a last mile return input signal, and the output comprises a composite signal.

Hwang discloses wherein each of the plurality of input signals comprises a last mile return input signal, and the output comprises a composite signal (see fig 7, wherein input signals are being received via an array 64, where the reception of these signals indicated last mile users).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to employ the multiplexing method according to Tang, using the input signals as disclosed by Hwang. The motivation for this modification is for a more efficient means of multiplexing.

**Claim 35** Tang does not specifically disclose wherein each of the plurality of input signals comprises a satellite uplink signal, and the output signal comprises a satellite composite downlink signal.

Hwang discloses wherein each of the plurality of input signals comprises a satellite uplink signal, and the output signal comprises a satellite composite downlink signal (fig 7 and abstract).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to employ the multiplexing method according to Tang, using the input signals

as disclosed by Hwang. The motivation for this modification is for a more efficient means of multiplexing.

***Allowable Subject Matter***

5. Claim 36 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

6. Applicant's arguments filed June 12, 2007 have been fully considered but they are not persuasive.

(a) The previous action made several rejections based on the broad interpretation of the use of the word "outside", now deleted and replaced as previously objected to. The new recitations now cite the relevant portions of Tang that reject each and every limitation of claims 1, 12, 20 and 27.

(b) The applicant argued that the cited art does not disclose that the bandwidth of the narrowband filters is less than the bandwidth of the output signal.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., see preceding paragraph) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are

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not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The claims 1, 12, 20 and 27 do not relate an output signal's bandwidth to any of the bandwidths claimed.

(c) The applicant argued that the cited art does not disclose replicating the input signals comprising a third bandwidth that is a multiple of the second bandwidth to generate a number of replicated signals corresponding to the multiple.

The examiner maintains that the claimed limitation interpreted in its broadest sense is disclosed within the rejection of claim 1, where Tang discloses replicating a signal of a third bandwidth (see sheet 2 of 2 fig 2, where a is replicated by a power splitter. Furthermore, the second bandwidth is the bandwidth of the narrowband filters, at 1.9 GHz-2.7 GHz, the same as that of the 3<sup>rd</sup> bandwidth. The 3<sup>rd</sup> bandwidth is the same as the first bandwidth, and is thus a multiple, seeing that every number is a multiple of itself.)

### ***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Grey whose telephone number is (571)272-3160. The examiner can normally be reached on 10AM-7:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on (571)272-7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christopher Grey  
Examiner  
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9/26/07



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